Space Weather Forecast

Issued on Thursday, 18 November 2021 at 01:08 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storms later on day 3 (20th) into day 4 (21st).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar Activity was Very Low, with no notable flares observed in the last 24 hours. There are two small and magnetically simple sunspot regions on the Earth-facing disc. No Earth-directed CMEs have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has been elevated or strong through the period but has begun to decrease over the past 6 hours from around 620 km/s to 540 km/s. Its total magnetic field has been weak, with no significant deflections in the important north-south component. Geomagnetic activity was mainly Quiet to Unsettled (Kp 2-3), but with an Active (Kp 4) interval from 17/0000-0300 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly Very Low, with a slight chance of Common-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the current forecast. Waning effects of coronal hole 19 will see elevated or slightly elevated solar winds through Day 1 (18th), then decline to slow levels on day 2 (19th). Later on day 3 (20th) into day 4 (21st) the solar wind is likely to become strong, as Earth connects to the fast wind from coronal hole 20. Quiet to Unsettled geomagnetic activity is expected on day 1 (18th), with a chance of an isolated Active interval, before becoming predominantly Quiet on day 2 (19th). Later on day 3 (20th) into day 4 (21st) geomagnetic activity is likely to become Unsettled to Active with a chance of G1 / Minor Storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background levels with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	20	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	3	3	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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